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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/815,161

Applicant(s)

HANSEN, CHRISTOPHER J.

Examiner

Amar Daglawi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 March 2004.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-29 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 31 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-8508)
Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

6DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 26-29 are rejected under 35 U.S.C. 102(e) as being anticipated by Sugar et al (US 6,714,605 B2).
3. With respect to claim 26, Sugar discloses a method in a radio transceiver comprising:
4. grouping a plurality of data entries (fig.11, Fig.12, Fig.6, col.10, lines 40-67, col.11, lines 5-67) ;
5. generating a first list of pulse repetition intervals having pulses with a pulse width within a specified range (col.10, lines 40-67, col.11, lines 5-67) ;
6. counting a number of most and second most common pulse intervals and determining whether a radar signal signal is present (col.12, lines 10-67, col.13, lines 1-67, col.14, lines 1-35, col.21, lines 45-60) [the sage 10 is used to classify and identify signals in a frequency band for radar systems] (col.3, lines 35-45, col.7, lines 5-67, col.8, lines 1-67, col.9, lines 67).

7. With respect to claim 27, Sugar further teaches including determining whether the number of the most common pulse interval values exceed a specified value (col.3, lines 35-45, col.7, lines 5-67, col.8, lines 1-67, col.9, lines 1-67).
8. With respect to claim 28, Sugar further teaches determining a radar signal is present with an extra pulse (col.3, lines 35-45, col.7, lines 5-67, col.8, lines 1-67, col.9, lines 1-67).
9. With respect to claim 29, Sugar further teaches continuing to monitor for a radar even after a radar has been detected to determine whether transmissions may resume in overlapping frequency bands (col.3, lines 35-45, col.7, lines 5-67, col.8, lines 1-67, col.9, lines 1-67) (col.21, lines 45-60) [the sage 10 is used to classify and identify signals in a frequency band for radar systems].

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:
 1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
12. Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shi et al (US 2003/0169827 A1) in view of Sugar et al (US 6,714,605 B2).
- 13.
14. With respect to claim 1, Shi discloses a radio transceiver (Fig.2) comprising:

radio front end for receiving, amplifying and down-converting and filtering a radio frequency (RF) signal to produce a low frequency received signal analog-to-digital converter (ADC) operatively coupled to receive the low frequency received signal, the ADC producing a digital low frequency signal baseband processor coupled to receive and process the digital low frequency signal (Fig.2).
15. However, fails to teach radar detection circuit coupled to receive the digital low frequency signal, wherein the radar detection circuit: detects incoming pulses and produces pulse data to a FIFO generates a table of pulse data for a series of pulses; evaluates the pulse data within the table to remove pulse data for pulses that do not satisfy specified radar pulse characteristics groups a plurality of pulse data within the table into groups of a specified size; performs radar detection processing; and wherein the baseband processor does not produce digital signals for transmission whenever a radar signal has been detected which is taught in the same field of endeavor by Sugar (Abstract, col.12, lines 10-67, col.13, lines 1-67, col.14, lines 1-35, col.21, lines 45-60) [the sage 10 is used to classify and identify signals in a frequency band for radar systems] (col.3, lines

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35-45, col.7, lines 5-67, col.8, lines 1-67, col.9, lines 67) (fig.11, Fig.12, Fig.6, col.10, lines 40-67, col.11, lines 5-67).

16. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Shi (the wireless communication device) to incorporate the spectrum analyzer that contains the signal detector and peak detector as taught by Sugar so as to write a pulse event entry into a pulse event list if the pulse duration exceeds a pulse duration threshold value. Otherwise the pulse event entry is discarded.

17. With respect to claim 2, Shi in view of Sugar further teaches pulse data having a pulse width below minimum pulse width is removed from the table (Sugar, col.3, lines 35-45, col.7, lines 5-67, col.8, lines 1-67, col.9, lines 67) (fig.11, Fig.12, Fig.6, col.10, lines 40-67, col.11, lines 5-67).

18. With respect to claim 3, Shi in view of Sugar further teaches pulse data having a pulse width above a maximum is removed from the table (Sugar, col.3, lines 35-45, col.7, lines 5-67, col.8, lines 1-67, col.9, lines 67) (fig.11, Fig.12, Fig.6, col.10, lines 40-67, col.11, lines 5-67).

19. With respect to claim 4, Shi in view of Sugar teaches the radio transceiver suspends radar detection processing whenever a total number of pulses within the table is less than a specified number (Sugar, Abstract, (col.3, lines 35-45, col.7, lines 5-67, col.8, lines 1-67, col.9, lines 67) (fig.11, Fig.12, Fig.6, col.10, lines 40-67, col.11, lines 5-67).

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20. With respect to claim 5, Shi in view of Sugar teaches the specified number is equal to six ((Sugar, Abstract, (col.3, lines 35-45, col.7, lines 5-67, col.8, lines 1-67, col.9, lines 67) (fig.11, Fig.12, Fig.6, col.10, lines 40-67, col.11, lines 5-67).

21. With respect to claim 6, Shi in view of Sugar teaches the radio transceiver resumes processing whenever the total number of pulses is greater than or equal to the specified number ((Sugar, Abstract, (col.3, lines 35-45, col.7, lines 5-67, col.8, lines 1-67, col.9, lines 67) (fig.11, Fig.12, Fig.6, col.10, lines 40-67, col.11, lines 5-67).

22. With respect to claim 7, Shi in view of Sugar teaches the radar detection circuit measures signal magnitude crossings of a plurality of thresholds and determines a rise time from a first to a second threshold, time above the second threshold, and a fall time from the second to the first threshold ((Sugar, Abstract, (col.3, lines 35-45, col.7, lines 5-67, col.8, lines 1-67, col.9, lines 67) (fig.11, Fig.12, Fig.6, col.10, lines 40-67, col.11, lines 5-67).

23. With respect to claim 8, Shi in view of Sugar teaches the radar detection circuit monitors at least one of a magnitude, a pulse width and timing and timing relationships of received pulses to determine whether a radar pulse has been received ((Sugar, Abstract, (col.3, lines 35-45, col.7, lines 5-67, col.8, lines 1-67, col.9, lines 67) (fig.11, Fig.12, Fig.6, col.10, lines 40-67, col.11, lines 5-67).

24. With respect to claim 9, Shi in view of Sugar teaches the radar detection circuit comprises a state machine (signal detector) for determining whether the received pulse has specified characteristics of a radar pulse (Abstract, col.12, lines 10-67, col.13, lines 1-67, col.14, lines 1-35, col.21, lines 45-60) [the page 10

is used to classify and identify signals in a frequency band for radar systems] (col.3, lines 35-45, col.7, lines 5-67, col.8, lines 1-67, col.9, lines 67) (fig.11, Fig.12, Fig.6, col.10, lines 40-67, col.11, lines 5-67).

25. With respect to claim 10, Shi in view of Sugar teaches the radar detection circuit produces a control signal that is set to a specified logic state whenever the radar signal has been detected (Abstract, col.12, lines 10-67, col.13, lines 1-67, col.14, lines 1-35, col.21, lines 45-60) [the sage 10 is used to classify and identify signals in a frequency band for radar systems] (col.3, lines 35-45, col.7, lines 5-67, col.8, lines 1-67, col.9, lines 67) (fig.11, Fig.12, Fig.6, col.10, lines 40-67, col.11, lines 5-67).

26. Claims 11-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shi et al (US 2003/0169827 A1) in view of Sugar et al (US 6,714,605 B2) and further in view of Wasiewicz (US 7,126,526 B2).

Shi teaches radio from end for receiving, amplifying and down converting and filtering a radio frequency (RF) signal to produce a low frequency received signal; analog to digital converter operatively coupled to receive the low frequency received signal, the ADC producing a digital low frequency signal; baseband processor coupled to receive and process the digital low frequency signal (Fig.2)

However, fails to teach radar detection circuit coupled to receive the digital low frequency signal, wherein the radar detection circuit further includes:

27. multiplication circuitry for receiving and squaring the digital low frequency signal; moving average filter selectively coupled to receive an output signal produced by the multiplication circuitry, the moving average filter producing a moving average filtered signal; first conversion block for converting a magnitude of the moving average filtered signal into decibel values; and a threshold comparison state machine coupled to receive an output of the first conversion block in decibel values, wherein the threshold machine measures rise time, fall time, and magnitude levels of the output of the first conversion block and detects a received radar pulse pattern and produces a corresponding control signal indicating whether a radar signal has been detected to the baseband processor; and wherein the processor is coupled to and receives rise time, fall time, and magnitude levels of received signals from the threshold comparison state machine, and wherein the processor determines whether the radar signal has been received and wherein wherein the radar detection circuit: detects incoming pulses and produces pulse data to a FIFO; generates a table of pulse data for a series of pulses; evaluates the pulse data within the table to remove pulse data that does not satisfy radar pulse characteristics; groups a plurality of pulse data within the table into groups of a specified size; performs radar detection processing; and wherein the radar detection circuit counts and determines a number of most common pulse interval values and determines a radar pulse is present if the number of most common pulse interval values is greater than or equal to a specified number which is taught in the same field of endeavor by Sugar ((Abstract, col.12, lines 10-67, col.13, lines 1-67,

col.14, lines 1-35, col.21, lines 45-60, fig.4, col.6, lines 20-35) [the sage 10 is used to classify and identify signals in a frequency band for radar systems] (col.3, lines 35-45, col.7, lines 5-67, col.8, lines 1-67, col.9, lines 67) (fig.11, Fig.12, Fig.6, col.10, lines 40-67, col.11, lines 5-67) [the moving average filter is the low pass filter since it typically averages a samples of inputs producing an output that removes high frequency components and the dB conversion block (150) and the signal detector is the threshold state machine] (See Fig.4).

28. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Shi (the wireless communication device) to incorporate the spectrum analyzer that contains the signal detector and peak detector as taught by Sugar so as to write a pulse event entry into a pulse event list if the pulse duration exceeds a pulse duration threshold value. Otherwise the pulse event entry is discarded.

29. Also, Shi in view of Sugar fails to teach if the radar signal has been received and if so inhibits transmissions on overlapping frequency bands which is taught in analogous art by Wasiewicz (See col.1, lines 50-67).

30. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Shi in view of Sugar with a buffer so as to avoid overlapping frequencies.

31. With respect to claim 12, Shi in view of Sugar and Wasiewicz further teaches the radar detection circuit examines pulse data within the table of pulse data to determine a radar is present with a missing pulse ((Sugar, Abstract,

(col.3, lines 35-45, col.7, lines 5-67, col.8, lines 1-67, col.9, lines 67) (fig.11, Fig.12, Fig.6, col.10, lines 40-67, col.11, lines 5-67).

32. With respect to claim 13, Shi in view of Sugar and Wasiewicz further teaches the radar detection circuit examines pulse data within the table of pulse data to determine a radar is present with an extra pulse ((Sugar, Abstract, (col.3, lines 35-45, col.7, lines 5-67, col.8, lines 1-67, col.9, lines 67) (fig.11, Fig.12, Fig.6, col.10, lines 40-67, col.11, lines 5-67).

33. With respect to claim 14, Shi in view of Sugar and Wasiewicz further teaches the radio transceiver suspends transmission in overlapping frequencies (Wasiewicz, (See col.1, and lines 50-67)).

34. With respect to claim 15, Shi in view of Sugar and Wasiewicz further teaches the radio transceiver classifies the detected radar by comparing frequencies of pulses to known radar signals (((Sugar, Abstract, (col.3, lines 35-45, col.7, lines 5-67, col.8, lines 1-67, col.9, lines 67) (fig.11, Fig.12, Fig.6, col.10, lines 40-67, col.11, lines 5-67).

35. With respect to claim 16, Shi in view of Sugar and Wasiewicz further teaches the radar detection circuit continues to monitor for radar and once a radar signal is determined to not be present, resumes transmission in overlapping frequency bands (Wasiewicz, (See col.1, and lines 50-67).

With respect to claim 17, Shi teaches radio from end for receiving, amplifying and down converting and filtering a radio frequency (RF) signal to produce a low frequency received signal; analog to digital converter operatively coupled to receive the low frequency received signal, the ADC producing a digital

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low frequency signal; baseband processor coupled to receive and process the digital low frequency signal (Fig.2).

However, fails to teach radar detection circuit coupled to receive the digital low frequency signal, wherein the radar detection circuit further includes a threshold comparison state machine for measuring rise time, fall time, and magnitude levels of received signals; wherein the radar detection circuit: detects incoming pulses and produces pulse data to a FIFO generates a table of pulse data for a series of pulses; evaluates the pulse data within the table to remove pulse data that does not satisfy radar pulse characteristics; groups a plurality of pulse data within the table into groups of a specified size; wherein the radar detection circuit counts and determines a number of most common pulse interval values and determines a radar pulse is present if the number of most common pulse interval values is greater than or equal to a specified number; and wherein the baseband processor is coupled to and receives rise time, fall time, and magnitude levels of received signals from the threshold comparison state machine ((Abstract, col.12, lines 10-67, col.13, lines 1-67, col.14, lines 1-35, col.21, lines 45-60, fig.4, col.6, lines 20-35) [the sage 10 is used to classify and identify signals in a frequency band for radar systems] (col.3, lines 35-45, col.7, lines 5-67, col.8, lines 1-67, col.9, lines 67) (fig.11, Fig.12, Fig.6, col.10, lines 40-67, col.11, lines 5-67).

36. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Shi (the wireless communication device) to incorporate the spectrum analyzer that contains the

signal detector and peak detector as taught by Sugar so as to write a pulse event entry into a pulse event list if the pulse duration exceeds a pulse duration threshold value. Otherwise the pulse event entry is discarded.

37. Also, Shi in view of Sugar fails to teach if the radar signal has been received and if so inhibits transmissions on overlapping frequency bands which is taught in analogous art by Wasiewicz (See col.1, lines 50-67).

38. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Shi in view of Sugar with a buffer so as to avoid overlapping frequencies.

39. With respect to claim 18, Shi in view of Sugar and Wasiewicz wherein the radar detection circuit examines pulse data within the table of pulse data to determine a radar is present with a missing pulse. ((Sugar, Abstract, (col.3, lines 35-45, col.7, lines 5-67, col.8, lines 1-67, col.9, lines 67) (fig.11, Fig.12, Fig.6, col.10, lines 40-67, col.11, lines 5-67).

40. With respect to claim 19, Shi in view of Sugar and Wasiewicz further teaches wherein the radar detection circuit counts and determines a number of most common and second most common pulse interval values and determines a radar pulse is present if the number of most common pulse interval values is equal to 2 times the number of the second most common pulse interval values. ((Sugar, Abstract, (col.3, lines 35-45, col.7, lines 5-67, col.8, lines 1-67, col.9, lines 67) (fig.11, Fig.12, Fig.6, col.10, lines 40-67, col.11, lines 5-67)

41. With respect to claim 20 Shi in view of Sugar and Wasiewicz further teaches wherein the radar detection circuit counts and determines a number of

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most common and second most common pulse interval values and determines a radar pulse is present if 2 times the number of most common pulse interval values is equal to the number of the second most common pulse interval values.

((Sugar, Abstract, (col.3, lines 35-45, col.7, lines 5-67, col.8, lines 1-67, col.9, lines 67) (fig.11, Fig.12, Fig.6, col.10, lines 40-67, col.11, lines 5-67).

42.

43. With respect to claim 21 Shi in view of Sugar and Wasiewicz further teaches the radar detection circuit counts and determines a number of most common and second most common pulse interval values and determines a radar pulse is present if the number of most common pulse interval values summed with the number of the second most common pulse interval values is greater than the specified number. ((Sugar, Abstract, (col.3, lines 35-45, col.7, lines 5-67, col.8, lines 1-67, col.9, lines 67) (fig.11, Fig.12, Fig.6, col.10, lines 40-67, col.11, lines 5-67).

44. With respect to claim 22, Shi in view of Sugar and Wasiewicz teaches wherein the radar detection circuit examines pulse data within the table of pulse data to determine a radar is present with an extra pulse. ((Sugar, Abstract, (col.3, lines 35-45, col.7, lines 5-67, col.8, lines 1-67, col.9, lines 67) (fig.11, Fig.12, Fig.6, col.10, lines 40-67, col.11, lines 5-67).

45. With respect to claim 23, Shi in view of Sugar and Wasiewicz further teaches the grouped plurality of pulse data entries, the radio transceiver generates a second list of pulse repetition intervals by subtracting a start time for a given pulse from a start time for a pulse preceding an immediately preceding

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pulse. ((Sugar, Abstract, (col.3, lines 35-45, col.7, lines 5-67, col.8, lines 1-67, col.9, lines 67) (fig.11, Fig.12, Fig.6, col.10, lines 40-67, col.11, lines 5-67).

46. With respect to claim 24 wherein the radio transceiver compares pulse intervals of the first list of pulse repetition intervals with the second list of pulse repetition intervals. ((Sugar, Abstract, (col.3, lines 35-45, col.7, lines 5-67, col.8, lines 1-67, col.9, lines 67) (fig.11, Fig.12, Fig.6, col.10, lines 40-67, col.11, lines 5-67).

47. With respect to claim 25, the radio transceiver determines a radar is present if pulse periods match from the comparison, and if the total number of pulses in second list of pulse repetition intervals is greater than a specified number. ((Sugar, Abstract, (col.3, lines 35-45, col.7, lines 5-67, col.8, lines 1-67, col.9, lines 67) (fig.11, Fig.12, Fig.6, col.10, lines 40-67, col.11, lines 5-67).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amar Daglawi whose telephone number is 571-270-1221. The examiner can normally be reached on Monday- Friday (7:30 AM- 5:00 AM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lana N. Le can be reached on 571-272-7891. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Amar Daglawi/
Examiner, Art Unit 2618

/Yuwen Pan/
Primary Examiner, Art Unit 2618